

## **CHAPTER 39-27 & 39-28**

### **MOTORCYCLE EQUIPMENT GUIDE AND SAFETY EDUCATION**

**39-27-01. Purpose.** It is the purpose of this chapter to establish performance and equipment requirements for the manufacture, sale, and safe operation of a motorcycle upon public highways, and to furnish administrators with a guide for registration eligibility and continued conformity as related to motorcycles.

#### **39-27-02. Manufacturer's or distributor's certification.**

1. The manufacturer or distributor shall provide a certification of the fact that a motorcycle or class of motorcycles is designed and manufactured for use upon public highways and complies with the performance and equipment requirements of this chapter, and the rules and regulations promulgated hereunder.
2. The certificate shall be incorporated on the manufacturer's statement of origin (MSO) upon transfer of vehicle ownership. .

#### **39-27-03. Frame-chassis requirements.**

1. The motorcycle frame-chassis, including the suspension components and engine mountings, shall be of substantial construction, capable of supporting the combined weight of all vehicle components and riders for which the vehicle is designed, and withstand normal road shocks and operational stresses without constituting a hazard to the riders or other users of the highway.
2. The wheel base shall not be less than forty inches (101.6 centimeters).

#### **39-27-04. Brakes.**

1. Every motorcycle shall have either a split service brake system or two independently actuated service brake systems in accordance with regulations promulgated by the registrar of motor vehicles pursuant to chapter 28-32. Brakes must act on the front and rear wheels.
2. Every motorcycle shall meet the requirements for brake system effectiveness, fade and partial systems as specified in rules and regulations promulgated by the motor vehicle registrar pursuant to chapter 28-32.
3. All linkage, cables, pivots, and bearings shall be free of excess (high) friction, with the front wheel brake cable so located and secured as not to become pinched between fork and frame members when wheel is turned completely to the right or left.
4. Brake actuating devices shall be in an accessible-location, unencumbered by vehicle components, and so positioned that adequate leverage and safe operation is ensured. Service brake system controls and operation requirements shall be in accordance with regulations promulgated by the motor vehicle registrar pursuant to chapter 28-32. A suitable mechanism shall be provided for the purpose of automatically returning the actuating devices to normal position upon release.
5. Motorcycle brakes must be capable of being adjusted automatically or manually with means provided to prevent unintentional adjustment.
6. Each three-wheel motorcycle shall be equipped with a parking brake of a friction type with a solely mechanical means to retain engagement.

**39-27-04.1. Brakes on motor-driven cycles.** The department may require an inspection of the brake on any motor-driven cycle and may disapprove any brake which is not so designed or constructed as to ensure reasonable and reliable performance in actual use.

### **39-27-05. Tires, wheels, and rims.**

1. Motorcycle tires shall be of pneumatic design with a minimum width of two and twenty-five hundredths inches (57.15 millimeters) designed for highway use.
2. Tires on two-wheel motorcycles and the front tire on a three-wheel motorcycle must have a load capacity rating at least equal to their respective gross axle weight ratings (GAWR). Each tire on the rear axle of a three-wheel motorcycle must have a load capacity rating at least equal to one-half the rear axle gross axle weight rating (GAWR).
3. Wheel rim diameters shall not be less than ten inches (25.4 centimeters) and shall otherwise comply with applicable state standards, as promulgated by the motor vehicle registrar.

### **39-27-06. Steering and suspension systems.**

1. Motorcycle steering and suspension systems shall be designed and engineered to provide the operator with the means of safely controlling vehicle direction under all maneuvers required for normal and safe operation.
2. The rear wheel of a two-wheel motorcycle shall track behind the front wheel within one inch (2.54 centimeters) with both wheels in a vertical plane when the vehicle is operating on a straight course. On a three-wheel motorcycle, the two wheels mounted on the rear axle shall have a wheel track distance no less than thirty inches (76.2 centimeters) and the mid-point of the rear wheel track distance shall be within one inch (2.54 centimeters) of the front wheel track when the vehicle is proceeding on a straight course. The vehicle shall be equipped with an adjustment feature that will provide proper wheel tracking.
3. The steering head shall be provided with a bearing or similar device that will allow the steering shaft to turn freely in rotational motion only.
4. All motorcycles, except three-wheel motorcycles, shall meet the following specifications in relationship to front wheel geometry:

MAXIMUM: Rake: 45 degrees - Trail: 14 inches  
(35.56 centimeters) positive

MINIMUM: Rake: 20 degrees - Trail: 2 inches  
(5.08 centimeters) positive

Manufacturer's specifications shall include the specific rake and trail for each motorcycle or class of motorcycles and the terms "rake" and "trail" shall be defined by the motor vehicle registrar by regulations promulgated pursuant to chapter 28-32.

5. Handlebars shall be of sturdy construction, adequate in size to provide proper leverage for steering, and capable of withstanding a minimum force of one hundred pounds (45.36 kilograms) applied to each handgrip in any direction. Handlebar grips shall be located no more than fifteen inches (38.1 centimeters) above the unoccupied seat with the handlebars located in a straight-ahead position and shall be capable of vertical adjustment. The handlebars shall provide a minimum of eighteen inches (45.72 centimeters) between grip after final assembly.
6. Handlebars shall be equipped with handgrips consisting of a material and surface pattern to ensure firm, nonslip gripping for the driver.

7. Every motorcycle shall be equipped with a suspension system and such suspension system shall be applicable to at least the front wheel. The suspension system shall be effective in reducing road shock and designed for the purpose of maximizing vehicle stability.

**39-27-07. Fuel system.**

1. All fuel system components, including the tank, pump, tubing, hoses, clamps, etc., shall be securely fastened to the motorcycle so as not to interfere with vehicle operation and be leakproof when the vehicle is in its normal operating attitude.
2. Fuel lines shall be positioned in a manner to prevent their contact with the engine head, manifold, exhaust system, or other high temperature surfaces, or moving components. The fuel system shall be adequately vented and provided with a fuel shut-off valve located between the fuel supply and the engine.

**39-27-08. Exhaust system – Prevention of noise.** Motorcycles shall be equipped with an exhaust system incorporating a muffler or other mechanical device for the purpose of effectively reducing engine noise. Cutouts and bypasses in the exhaust system are prohibited. The system shall be leakproof and all components shall be securely attached to the vehicle and located so as not to interfere with the operation of the motorcycle. Shielding shall be provided to prevent inadvertent contact with the exhaust system by the operator or passenger during normal operation. In addition, all motorcycles operating on streets and highways shall meet the noise decibel limitations as established by the environmental protection agency. No person shall sell, offer for sale, or install any noise suppressing system or device which will produce noise in excess of the maximum allowable decibel limitations of this section.

**39-27-09. Mirrors.** Every motorcycle shall be equipped with at least one mirror of unit magnification, securely affixed to the handlebar and capable of adjustment within a range that will reflect an image that includes at least the horizon and the road surface to the rear of the motorcycle. Such mirror shall consist of a minimum reflective surface of ten square inches (64.52 square centimeters). All mirrors shall not contain sharp edges or projections capable of producing injury.

**39-27-10. Fenders.** Each wheel of a motorcycle shall be equipped with fenders or otherwise covered by the body configuration. Fenders shall be securely mounted and of sufficient size and strength to minimize water or other road surface substances from coming in contact with the vehicle riders, or throwing the road substances unreasonably to the rear of the vehicle. Fender design shall be effective in reducing side spray.

**39-27-11. Seat or saddle.** A seat or saddle securely attached to the vehicle shall be provided for the use of the operator. The seat or saddle shall not be less than twenty-five inches (63.5 centimeters) above a level road surface when measured to the lowest point on top of the seat or saddle cushion with the operator seated in a driving position. The seat or saddle adjustment locking device shall prevent relative movement of the seat from its selected and secured position under all normal vehicle operating conditions.

**39-27-12. Chain guard.** Any drive chain on a motorcycle shall be equipped with a chain guard or covering device to prevent chain or chain sprocket contact with any rider.

**39-27-13. Vehicle stand.** All motorcycles designed with two wheels shall be equipped with a retracting vehicle stand to permit the vehicle to remain in an upright stored position without outside assistance. The stand may be of a side or center type, and shall be of substantial construction to hold the vehicle so equipped.

**39-27-14. Glazing.** When equipped, all motorcycle windscreens and windshields shall meet the following standards:

1. The glazing material shall comply with the standards promulgated by regulation of the registrar of motor vehicles.
2. The metal support shall be of a material which shall bend rather than fragment under impact.
3. Covering material, other than glazing, shall be beaded at the edges to prevent fraying.

**39-27-15. Horn.** Every motorcycle shall be equipped with an operative horn in good working order as described by subsection 1 of section 39-21-36. The horn shall operate from a control device located on the left handlebar.

**39-27-16. Speedometer and odometer.** Every motorcycle shall be equipped with a properly operating speedometer and odometer calibrated in miles per hour and miles respectively and shall be fully illuminated when the head lamp is activated.

**39-27-17. Lighting equipment.**

1. Every motorcycle shall be equipped with lamps, reflective devices, and associated equipment as required by and in compliance with standards promulgated by regulation of the motor vehicle registrar.
2. A gearbox indicator light, if provided, shall be located within the operator's field of vision.
3. Ahead lamp beam indicator light shall be located within the operator's field of vision and illuminated automatically when the hi-beam of the head lamp is actuated.

**39-27-17.1. Lighting equipment on motor-driven cycles.** The head lamp or head lamps upon every motor-driven cycle may be of the single-beam or multiple-beam type but in either event shall comply with the requirements and limitations as follows:

1. Every head lamp or head lamps on a motor-driven cycle shall be of sufficient intensity to reveal a person or a vehicle at a distance of not less than one-hundred feet (30.48 meters) when the motor-driven cycle is operated at any speed less than twenty-five miles (40.23 kilometers) per hour and at a distance of not less than two hundred feet (60.96 meters) when the motor-driven cycle is operated at a speed of twenty-five or more miles (40.23 or more kilometers) per hour, and at a distance of not less than three hundred feet (91.44 meters) when the motor-driven cycle is operated at a speed of thirty-five miles (56.33 kilometers) per hour.
2. In the event the motor-driven cycle is equipped with a multiple-beam head lamp or head lamps the upper beam shall meet the minimum requirements set forth above and shall not exceed the limitations set forth in subsection 1 of section 39-21-20 and the lowermost beam shall meet the requirements applicable to a lowermost distribution of light as set forth in subsection 2 of section 39-21-20.
3. In the event the motor-driven cycle is equipped with a single-beam lamp or lamps the lamp or lamps shall be so aimed that when the vehicle is loaded none of the high-intensity portion of light, at a distance of twenty-five feet (7.62 meters) ahead, shall project higher than the level of the center of the lamp from which it comes.

**39-27-18. Passenger seat.** Motorcycles designed to carry more than one person must be equipped with a securely mounted seat for each passenger located to the side or rear of the driver such that the passenger seat does not interfere with the driver's control or operation of the vehicle. In the case of a two-wheel vehicle, the passenger seat shall be located on the longitudinal centerline of the motorcycle.

**39-27-19. Handhold.** A handhold device, which may consist of a bar or strap, to provide adequate support for a person having a body weight up to two hundred fifty pounds (113.40 kilograms) must be provided for the passenger rider if the motorcycle is designed to carry more than one person.

**39-27-20. Footrest.** Footrests shall be provided for each designated seating position. Each footrest for a passenger shall be so designed and constructed to support a static weight of two hundred fifty pounds (113.40 kilograms) applied at the center of the foot pedal. Footrests shall be so located to provide reasonable accessibility for the passenger's feet. Footrests shall fold rearward or upward when not in use if the footrest protrudes beyond the width of the handlebars.

**39-27-21. Highway bars.** If a motorcycle is so equipped, highway bars shall have a maximum width of twenty-six inches (66.04 centimeters); shall be located less than fifteen inches (38.1 centimeters) from the foot controls; and shall not interfere with the operation of the foot controls.

**39-27-22. Equipment approval.** All motorcycle lighting devices, electrical systems, brake components, glazing materials, and exhaust systems, incorporating a muffler or other mechanical exhaust device, required or optional, shall be approved by the motor vehicle department before they will be available for use within the state.

**39-28-01. Additional fees for motorcycle registration.** In addition to the fees required by section 39-04-19, for motorcycle registration, a motorcycle safety education fee of five dollars shall be required at the time of registration of each motorcycle.

**39-28-02. Superintendent of public instruction to establish standards for motorcycle safety courses.** The superintendent of public instruction shall establish requirements for instructional standards, course approval, and teacher certification standards for motorcycle safety courses required by this chapter. Motorcycle safety courses may be offered by public schools and by approved organizations which meet instruction, course, and teacher certification requirements. The superintendent may adopt rules governing the operation of motorcycle safety courses, administer moneys pursuant to this chapter, conduct audits and otherwise examine the records and accounts of approved motorcycle safety courses, and require other information as may be necessary to monitor the quality of motorcycle safety courses.

**39-28-03. Reimbursement for motorcycle safety courses.** The superintendent shall reimburse public schools and organizations offering approved motorcycle safety courses for the actual cost of the courses. The amount of reimbursement for each student shall not exceed the actual per pupil cost for the motorcycle safety program.

**39-28-04. Motorcycle safety promotion.** The highway commissioner, in cooperation with other state agencies, shall promote safety and awareness in the use and operation of motorcycles through advertising and other appropriate means, as provided by this chapter. The general public may provide input to improve motorcycle safety and education.

**39-28-05. Disposition of fees.** Any fee collected pursuant to this chapter shall be deposited by the motor vehicle registrar with the state treasurer and credited to a special motorcycle safety education fund in the state treasury.

## MORTORCYCLE FRONT END GEOMETRY

